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March 5, 2010

Mr. Grant Smedley
Senior Environmental Engineer
Environmental Compliance
Salt River Project
P.O. Box 52025, PAB352
Phoenix, Arizona 85072-2025

Re: Dust Collector Particulate Matter Performance Testing
Limestone Handling System
Coronado Generating Station

Dear Mr. Smedley:

In January 2010, Applied Environmental Consultants (AEC) provided a proposal to Salt River Project (SRP) to conduct initial performance testing for the Dust Collectors in the Limestone Handling System at the Coronado Generating Station. As a follow-up to our proposal, you requested that I provide this letter to summarize the challenges associated with testing the Dust Collectors, and identify exceptions to the standard test methods that would be required.

Particulate matter emissions from the Limestone Handling System are controlled by four Dust Collectors. Two Wet Dust Extractors (DC-12 and DC-13) control emissions from the Limestone Conveyer. Two Baghouses (DC-14 and DC-15) control emissions from individual Storage Bins. Each Storage Bin has a maximum capacity of 73 tons of limestone. Each bin is equipped with a forced draft ventilation system rated at 600 actual cubic feet per minute (acfm) at 6 inches of water gauge (in. WG) that exhausts through the dedicated baghouse. Each baghouse exhaust is a single round stack, six inches in diameter. Each storage bin is filled by the limestone conveyor system with a normal maximum operating rate of 200 tons per hour (tph). Only one bin at a time can be filled from this conveyor system. At normal operating rates, a completely empty bin will fill in approximately 20 minutes.

Each limestone bin discharges to a ball mill which has a normal maximum capacity to process approximately 4 tph of limestone. At this sustained rate, approximately 18 hours is required to empty an individual limestone bin. Based on these normal process rates, one 40-minute test run for each of the limestone conveyor system's two wet dust collectors and one 20-minute test run for each of the two limestone storage bin vent baghouses could be performed in approximately one 1-hour period, but a subsequent test run could not be conducted for at least 18 hours, assuming that all of the limestone slurry produced downstream of the ball mills could be used as

soon as it is produced. For reasons explained below, the normal operating conditions for this equipment make testing in accordance with standard methods impossible. Therefore, PM testing would require the use of modified procedures that would require approval by ADEQ.

EPA Reference Method (RM) 5 does not specify the minimum volume of air sampled per test run. However 40 CFR 60 Subpart OOO does specify a minimum sample volume of 60 dry standard cubic feet (dscf) per test run. Under RM 4, which is used to determine stack moisture in conjunction with RM 5 for this testing, the maximum sample rate is 0.75 cubic feet per minute (~0.68 dscf per minute). In order to collect the 60 dscf minimum volume, the test runs would have to be approximately 88 minutes, which would require that a test run that was started one day could not be finished until the following day or possibly even the next day. While it is often allowed to pause a test run for process disruption or equipment malfunction and then resume the run, the normal maximum delay time is approximately 1 hour. Per 40 CFR 60.8, tests are required to consist of at least three test runs. Even if the delay were allowed, completing three Method 5 tests for the two Wet Dust Collectors could take up to nine days to complete, if all of the limestone can be emptied from the bins and utilized in the downstream process at the maximum rates. Testing the two Wet Dust Collectors simultaneously will require approximately 5-6 stack test personnel in order to collect PM samples and perform visible emissions (VE) observation by Method 9.

The limestone storage bin baghouses are not subject to the testing requirements of Subpart OOO and so the minimum sample volume of 30 dscf is normally required to be considered a valid test. Sampling at the 0.68 dscf per minute maximum rate requires approximately 44 minutes to obtain this sample volume. Therefore, completing three sample runs would take at least 6 days and possibly 9 days if the same conditions described above were applicable. Testing of these two baghouses will require 2-3 men to perform the Method 5 sampling and Method 9 VE observations. Simultaneously testing the limestone storage bin baghouses with the wet dust collectors requires a total of 7-9 test personnel to accomplish.

ADEQ has an option to accept only two sample runs if one of the runs encounters an accidental loss of samples or is determined to be invalid, but this option is normally exercised only after all three required test runs have been attempted.

ADEQ also has the option of allowing sampling times and volumes to be adjusted to less than the specified times and/or volumes prescribed in the applicable regulations. However, they will require a minimum sample volume be collected that is sufficient to ensure that the PM collected will be greater than 3.0 mg if the PM concentration in the stack exhausts were at the maximum allowable concentration of 0.005 grains per actual cubic foot (gr/acf). However, due to the operating time limitations described above, ADEQ approval to collect less than 30 dscf of sample volume per test run for the bin vent baghouses and less than 60 dscf of sample volume per test run for the wet dust collectors would be required.

If a run sampling time for each limestone bin vent baghouse test run were 20 minutes, a minimum sample volume of 15 actual cubic feet will be collected. If the PM concentration is at

the maximum allowable value of 0.005 gr/acf, the total mass of PM collected during this run would be approximately 4.9 mg (See calculations below[1]).

If a run sample time for each limestone conveyor wet dust collection system test run were 40 minutes and a sample volume of 30 actual cubic feet will be collected. If the PM concentration is at the maximum allowable value of 0.005 gr/acf, the total mass of PM collected during this run would be 9.7 mg (See calculations below[1]).

If you have any questions, please call me at 480-829-0457.

Sincerely,

Mannie L. Carpenter, P.E.
Senior Engineer

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[1] **Calculations**

Neglecting moisture, at assumed stack conditions of (should we assume the lowest temperature as a worst-case scenario – St. Johns can reach temperatures as low as 10F in the winter months) 10°F and 24.30 in. Hg conditions:

1 standard cubic foot = 1 ft^3 x 29.92 (in. Hg) /24.30 (in. Hg) x (460 + 10)°R/528°R
= 1.1 ft^3 (actual)

Sample rate conversion:

0.75 acfm / 1.1 acf/scf = 0.68 scfm

Limestone Bin Vent Baghouses mass of PM collected:

M_{PM} = 0.75 ft^3/min x 20 min/run x 0.005 gr/ft^3 x 0.06480 g/gr = 0.0049 g (4.9 mg)

Conveyor Wet Dust Collection Systems mass of PM collected:

M_{PM} = 0.75 ft^3/min x 40 min/run x 0.005 gr/ft^3 x 0.06480 g/gr = 0.0097 g (9.7 mg)